

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 (currently amended). An electronic imaging system for capturing an image of a scene; said imaging system comprising:

(a) an optical system ~~for~~ producing an optical image of the scene;
(b) an imaging sensor having a surface in optical communication with the optical system; and

(c) a plurality of imaging elements distributed on the surface of the imaging sensor, ~~said imaging elements~~ ~~for~~ converting the optical image into a corresponding output signal, said imaging elements being located according to a distribution representable by a nonlinear function in which the relative density of the distributed imaging elements is greater toward the center of the sensor, wherein the distribution provides physical coordinates for each of the imaging elements corresponding to a projection of the scene onto a non-planar surface; ~~, thereby compensating for perspective distortion of the scene onto the non-planar surface~~

wherein said optical image has a perspective distortion relative to said surface and said distribution of said imaging elements on said surface of said imaging sensor compensates for said perspective distortion.

2 (original). The system of claim 1 wherein the non-planar surface is a cylinder.

3 (original). The system of claim 1 wherein the non-planar surface is a sphere.

4 (original). The system of claim 2 wherein the optical system includes a lens and the axis of rotation of the cylinder intersects a nodal point of the lens.

5 (original). The system of claim 3 wherein the optical system includes a lens and the center of the sphere is located at a nodal point of the lens.

6 (original). The system of claim 2 wherein the radius of the cylinder is a function of a focal length of the optical system.

7 (original). The system of claim 3 wherein the radius of the sphere is a function of a focal length of the optical system.

8 (original). The system of claim 1 wherein the imaging sensor is a charge-coupled device.

9 (original). The system of claim 1 wherein the imaging sensor is a CMOS device.

10 (original). The system of claim 1 wherein the output signal includes data from a plurality of images.

11 (original). The system of claim 10 further including a processor for combining the images into a composite image, whereby the processor can operate directly on the output signal without having to warp the image data.

12 (original). The system of claim 11 further including a projector for projecting the composite image onto a planar surface.

13-22 (cancelled).

23 (currently amended). A method of generating a composite digital image from at least two source digital optical images having a perspective distortion relative to a planar surface, said method comprising:

(a) generating the at least two source digital images corresponding to said optical images, from an imaging source image sensor having imaging elements distributed, in a plane, so as to compensate for said perspective distortion of the scene onto a non-planar surface; and

(b) combining the source digital images without further correction of said perspective distortion to form a composite digital image.

24 (currently amended). The method of claim 23 further comprising the step (c) of projecting the composite digital image ~~onto a planar surface~~.

25 (original). The method of claim 23 wherein the two source digital images overlap in overlapping pixel regions.

26 (currently amended). The method of claim 23 wherein ~~the non-planar surface is said perspective distortion corresponds to a projection of the scene onto a cylinder~~.

27 (currently amended). The method of claim 23 wherein ~~the non-planar surface is said perspective distortion corresponds to a projection of the scene onto a sphere~~.

28 (new). A method of generating a composite digital image, said method comprising:

producing an optical image of a scene on an image sensor having a planar surface, said optical image having a perspective distortion relative to said planar surface;

generating a digital image corresponding to said optical image using said image sensor, on imaging elements of said image sensor, said imaging elements being located according to a non-linear distribution representable by a projection of the scene onto a non-planar surface.

29 (new). The method of claim 28 wherein said imaging elements are linearly addressed.

30 (new). An electronic imaging system comprising:
an optical system transmitting an optical image; and
a plurality of imaging elements receiving said optical image and converting said optical image into a corresponding output signal, said imaging elements having a distribution defining a plane, said distribution representing a nonlinear function corresponding to a projection of the scene onto a non-planar surface;

wherein said optical image has a perspective distortion relative to said plane and said distribution of said imaging elements on said plane compensates for said perspective distortion .

31 (new). The system of claim 30 wherein said imaging elements are linearly addressed.

32 (new). The system of claim 30 further including a processor combining said output signal and one or more additional output signals into a composite image without warping.

33 (new). An electronic imaging system for capturing an image of a scene; said imaging system comprising:

an optical system producing an optical image of the scene;
an imaging sensor having a surface in optical communication with said optical system; and

a plurality of imaging elements distributed on the surface of the imaging sensor, said imaging elements converting said optical image into a corresponding output signal;

wherein said optical image has a perspective distortion relative to said surface and said imaging elements on said surface of said imaging sensor have a non-linear distribution compensatory of said perspective distortion and linear addressing.

34 (new). The system of claim 33 further including a processor combining said output signal and one or more additional output signals into a composite image without warping.